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Forest Insect Field Station,
Coeur d'Alene, Idaho,
May 14th, 1924.

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MEMORANDUM FOR THE DISTRICT FORESTER, MISSOULA, MONTANA.

Re- Missoula National Forest Insect Control Project.

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Reference is made to correspondence (S - Insect Control) subsequent to March 21st, 1924, for information relative to the purpose of this project.

A brief summary of the above reference is herewith included in this memorandum as a matter of convenience. An epidemic of the mountain pine beetle (*Dendroctonus monticolae*) ^{started} in the lodgepole pine stands of the Clearwater drainage of the Blackfoot River in 1913. Since that time it has spread north and south along the Continental Divide, and in the south it now threatens the valuable lodgepole pine stands of the southern Missoula National Forest, Big Hole Basin, and the East Fork of the Bitterroot River. Under date of March 21st, 1924, it was proposed by the District Forester to make a stand against this invasion in order to prevent the destruction of these valuable timber stands. The proposed plan called for the creation of a zone or line of defense, bounded on the east by the Deerlodge Smelter Killed Area and on the west by the Bitterroot Valley, in which, or south of, all infested trees were to be treated for a number of years, or until the infestation north of this area has died down. This plan was submitted to the Bureau of Entomology and approved on an experimental basis as a project of this character had never been undertaken before.

Accompanied by Ranger Townsend an examination of the eastern portion of the proposed zone of defense was made by Messrs Koch and Evenden, on May 6th, 7th, and 8th. This examination showed that there are scattered groups of trees killed by the 1922 attacks of the mountain pine beetle, the foliage of which were red at this time. Several of these groups were examined and trees containing the broods of the 1923 attack, with no discoloration of the foliage whatever, were found. These groups contain from five to twenty-five trees and are scattered throughout the region examined. There is every reason to believe that these

spots, or groups, are the advance attacks of the heavier infestation lying to the north. Further-more there is little doubt but that as the epidemic moves southward to the regions adjacent to the areas under control the infestation within these areas will increase in severity each year until the losses in the untreated region reach a maximum point after which a rapid decline may be expected.

In view of the above findings the following recommendations are made;

(1) That a line of defence be established as shown on the map attached to this memorandum which runs as follows: From Silver Lake northwest along the Anaconda-Philipsburg road to Sec. 26, T. 6 N. R. 14 W., then west one mile to the Philipsburg-Wilma road, following this road to Sec 31, T.6 N. R 15 W., then along the divide between Stony Creek and the West Fork of Rock Creek, across the Bitterroot-Rock Creek Divide and along the Burnt Fork of the Bitterroot and Shalkako Creek Divide to the Bitterroot Valley. This line is the shortest that could possibly be established and advantage of all possible barriers of open grass land and the Rock Creek Canyon is taken.

(2) That the infestation to the north of this line be disregarded at the present time, but that all infested trees to the south be treated during the months of May and June for a period of years. Inasmuch as it is believed that the greatest bulk of the trees containing broods (1923 attacked) at this time will be found in T. 5 N., R. 14 W., control work for the spring of 1924 should be confined to this region. The 1923 attacked trees, which contain broods at this time, can only be found by using the 1922 attacked trees (red topped) as a guide and by searching for the infested green trees. It view of this fact it must be remembered that we will always, or nearly always, be one year late in locating the ~~new groups~~ of infested trees as they come from the epidemic to the north, unless a very intensive survey is made of the region each year. During the work this year a careful check will be kept upon the foliage colors in relation to the brood development, and it is possible that if the time of control could be extended into the later part of June there may be a sufficient yellowing of the needles to make the location of the infested trees by spotting feasible.

(3) That for the year 1924 at least one weeks spotting and marking of infested trees be conducted before control work is started.

This action was necessary as it was very evident that the infested trees would be badly scattered and their location would need be known fairly well in order to prevent non-effective time of the part of control crews and for the purpose of determining the size of crew required.

Mr. H. J. Rust, Entomological Ranger, has been assigned to this project. Mr. Rust will be in charge of the preliminary surveys and will remain throughout the control work. To assist Mr. Rust in this survey and to act as forman during the actual control work, the services of Mr. Henry Bauer were secured. Mr. Bauer is very familiar with the country and it is believed that the instruction which he will receive from Mr. Rust will make him a valuable man in the future stages of this project. The survey was started by Messrs Rust and Bauer on the 12th of May, and it is expected that it will be possible to start control work on the 21st. If the results of this survey show a volume of timber in excess of the amount which it will be possible to treat with the present allotment, the control work will be carried on in such a manner so as to treat the largest percentage of the infested trees.

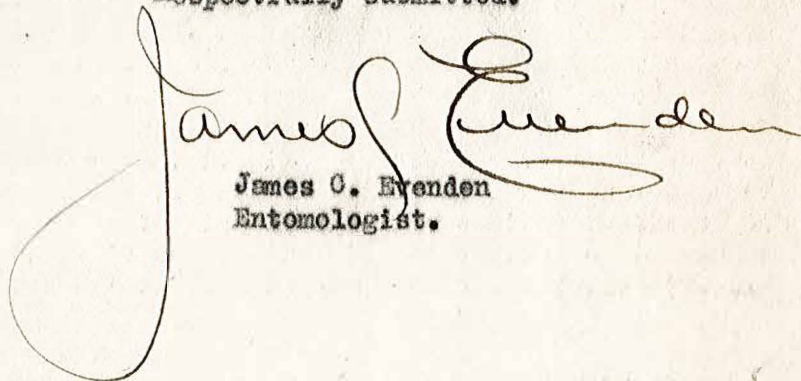
The following recommendations are made for the summer season of the Fiscal Year 1925.

An accurate knowledge of the conditions south of the proposed line of defense is essential to the success of the project. Inasmuch as our data relative to conditions within this region is very limited it is recommended that a very intensive survey of this area be made during the coming summer. Such a survey should include all the region south of the line of defense for a distance of at least ten miles. Furthermore it is believed that an extensive survey should be made of the timber stands of the Big Hole Basin and the Bitterroot Forest. This data is essential in planning control work for the spring of 1925. It is very essential that an examination be made of the East Fork of the Bitterroot River, as this region lies to the south of the line of defense, and several years ago a rather severe timber loss occurred due to an epidemic of the mountain pine beetle.

In view of the above facts it is recommended that this survey be carried on by two men during the months of August and September. The Bureau of Entomology will assign Mr. Rust to this work and it is trusted that the Forest Service will secure the services of some one who will be interested in the work and who will be available in future surveys and control operations of this project.

The writer is indebted to Mr. Koch for his assistance during this examination and in planning this method of control, and it is trusted that this memorandum is in accordance with the plan as agreed upon in the field.

Respectfully submitted.

A large, stylized handwritten signature in dark ink, appearing to read "James O. Evenden". The signature is written in a cursive style with a large loop at the beginning and a long, sweeping tail.

James O. Evenden
Entomologist.

Small Patches of Timber